THE

NEW ENGLAND

Journal of Dentistry.

Vol. III. FEBRUARY, 1884. No. 2.

ORIGINAL COMMUNICATIONS.

EARLY TREATMENT OF THE TEETH.

BY G. F. EAMES, M. D., D. D. S., BOSTON, MASS.

[Read before the Massachusetts Dental Society.]

The paper which I have been invited to present is a slight modification of one presented to the Maine Dental Society, at its meeting last July, and I now respond in the hope that the effort, although of little value in itself, may lead to a line of investigation the results of which shall be worthy of the profession which we love, and whose lofty ideal we should ever strive to comprehend.

It is not the object of this paper so much to discuss particular methods of procedure as to indicate general principles, and to set forth the need of giving more attention to this subject, as one of the indispensables in the salvation of teeth in the adult.

Let us notice some of the reasons why this branch of our professional work is so much neglected: First, a prevailing dislike for this kind of work. Second, the apparent difficulty of obtaining full compensation for services thus rendered. Third, a want of appreciation and of information on the part of the public, and as a consequence, little or no demand for our services in this direction.

As to whether these reasons are sufficient to account for the inac-

tivity in the profession, or whether we actually need quickening in this direction, let a healthful conscience answer. Have we a just conception of the object of our calling? If we answer in the affirmative, we must qualify it by the assertion that we fear that it has often been allowed to slumber; and as to the demand on the part of the people, it is doubtful if there is one in ten thousand having a proper conception of what should be the highest object of dental ambition. Why do we see so many young ladies bestowing the greatest care upon their personal appearance, with the exception of an utter disregard for the teeth, which in consequence, are most repulsive to the sight? Sad enough is the fact that, in this enlightened age, when nature and art are made a subject of so much study, so many are found who do not appreciate that in which our most ancient writers found so much to praise. It is because individual tastes in this direction are depraved in consequence of the false teachings of ignorant and unprincipled quackery, and we should remember that while one of such a class is allowed to practice in our midst, it will destroy very much of the good teaching of our best dental educators. There is a responsibility connected with this state of ignorance among the people. It is not necessary to inform an enlightened profession where the responsibility lies.

While the educated and enlightened have been inactive, the "evil one" has been intensely active. The *quack* is abroad in the land, and woe to the natural teeth having the slightest pretext for extraction. The willing charlatan finds too many willing victims to his abominable work. Young ladies with irregular teeth, and numberless other cases with remediable conditions, all fall a sacrifice to these nomadic imposters. Visit the places where they thrive, and you will find three-fourths of the adult females wearing artificial teeth. Shall this disgraceful practice exist side by side with intelligent and conscientious practitioners and among a law-abiding people? We cannot now predict its *entire suppression*, but we *can* pledge our united *efforts* for the attainment of this object. Much in this direction can be done while at work in the operating room—a word thrown in here and there—words of explanation, and words of condemnation, if necessary. Too often we have failed to use the latter, when from a misconceived notion of professional etiquette, we would not slander a brother dentist. Let us remember that so-called dentists are not our brothers in the sense in which this term is usually taken. There is a large proportion claiming citizenship in professional territory whose claims

tend to destroy the very foundation of our profession, whose teachings are in direct opposition to those principles which insist upon the preservation of the natural teeth, and whose ignorance never dreams of such treatment as would nourish the first deposit in epithelial formation through its successive changes to the completely developed tooth.

Instruction must be conveyed to the people, and it should not be considered unprofessional to give lectures designed to instruct the public in these matters, and in this way much can be said which we could not say privately in the office, for fear of giving offense. We are disposed to shun public lectures upon these subjects because they savor so largely of quackery, but shall we allow its advocates to rob us of an instrument capable of producing such good results? Of course, care and judgment are necessary to secure the best results; and to avoid the appearance of charlatanism, for instance, I would suggest that the lecturer should not speak to the people among whom he is practicing, but that exchanges be made between different towns and cities. Thus far we may draw two conclusions as being essential to the attainment of our object. 1. Ostracize the quack; 2. Give sound information to the people. What sort of information is most needed? Two things I would emphasize, viz: Instruction in the various methods of cleansing the teeth; also, impress upon the patient the fact that dentists are now qualified to treat systemic conditions influencing the nutrition of the teeth, and that they should therefore be called upon to treat these conditions. The patient cannot always be relied upon to decide or know when the services of a dentist are required. This difficulty may at once be removed if we can secure from our patients regular and frequent visits.

How early, or at what period of life shall treatment of the teeth begin? We answer, as soon as tooth material begins to be deposited in the development of the fœtus in utero. Every dentist of experience knows and regrets the sad effects of child-bearing upon the teeth. He has a patient in whom he takes much pride—a young married woman in good health, and the happy possessor of a full set of natural teeth. She visits the office regularly twice a year, and the dentist finds but little to do each time, and he confidently assures his patient that with proper care, her teeth will last a life-time. But the visits of this patient are interrupted; nothing has been heard about the case for months, when the information reaches the ears of the dentist that she has become a mother. Days pass by, and perhaps a year or more (very often more) from the

last visit, the patient makes her appearance. An examination of the mouth shows the ravages of decay—the secretions altered and tooth structure weakened. It is plain that such interruptions should not occur, that the dentist should be constantly informed as to the condition of his patient, and in a case like the one just mentioned, the patient should be taught that her condition is not an excuse for neglecting the teeth, but that examinations should be even more frequently made than before, and that when a visit to the dentist is unpleasant or impossible, he should visit the patient at her home.

Perhaps this case is overdrawn to represent the *average* patient, but the importance of supplying the drain upon the system of the mother *cannot* be over-estimated. If the demand for bone material has exceeded the supply in the mother, it is a fair conclusion that the supply has been limited to the fœtus and to the infant. In other words, there is either a lack of the bone-forming elements in the child's system, or the power of assimilation is deficient. Let these losses be supplied, together with good hygiene, and we have thereby a most effective remedy for diseases of the dental organs. In order to employ these measures, the practitioner must of course have full control of his patient, which is often the most serious obstacle in the way to success.

It is thus evident that if medicine and advice are to be administered with effect, it must be done while the organs are being formed or during the growing period. But this is the time when least of all the dentist gains access to his patient, for it is still true that very many avoid his office until actually obliged to seek relief from pain.

In some of the very few articles bearing on this subject, it is recommended that the teeth of children should be examined as early as the second year. This, as you may perceive, *may* be too late. Bone-forming elements have been already deposited; the temporary dentition is or should be complete; a scrofulous tendency, or other hereditary taint, may now have accomplished a work the effects of which may be lasting, or overcome only by a long period of treatment. Let us secure to our patients the ounce of prevention in the way which I have tried to indicate, viz: To begin with the mother; if the secretions of the mouth are abnormal, and there are evidences of denutrition, the proper remedies, with careful instruction, should be at once given. If the patient be then under the care of her physician, a consultation should be held, and some compatible decision reached. After birth, if the child is not properly nourished, it should be fed

largely through the system of the mother, aiming to supply the lime-salts and their perfect assimilation. The child should come under the eye of the dentist at regular intervals, whatever the condition of health. It is a very easy matter for the nurse to take the infant to the office, as she takes it out for an airing. Having secured regular visitations from our little patient, indications are to be met as they arise.

The question of lancing the gums, extraction, food and medication, would occupy too much space if discussed in this paper. I wish, in conclusion, to say that I have indicated no line of treatment but that which I believe can be practically carried out. I have little patients of four or five years who look forward to their visits to the office with pleasure. I never intentionally deceive children, or anybody else. Contrary to the rule with some practitioners, I administer anæsthetics to children. I may take a little time to *amuse* children, and count it time gained. It is best to give very short sittings—from fifteen to twenty minutes each, and this is as long as the dentist usually cares to work for such patients.

We cannot too rigidly insist on the early and thorough use of the tooth-brush. While the nurse would scorn to neglect to wash the child externally every day, yet she with impunity omits to brush the teeth, which we should teach as being equally important and conducive to health. This should be done as soon as the teeth are erupted, the mother or nurse using the brush for the child until of an age when capable of using it for himself.

You perceive that the line of treatment hinted at requires a knowledge of medicine, and such requirements are now being realized and fulfilled. Strictly mechanical dentistry is being given to those who will give special attention to that branch, and as we study dental science as a medical specialty, and find our knowledge of that science increasing, new fields for research will thus be opened, requiring more and more attention from the practitioner, until his time is all taken in the study and practice of dental medicine in its truest sense. When that time comes, as the oculist writes a prescription for glasses, and as the aurist prescribes instruments to assist in hearing, so the dentist will indicate in his prescriptions the various mechanical appliances and filling materials needed for the case in hand—although we hope that *such* prescriptions in dentistry will be very rare, when the "early treatment" is carried out to its fullest extent.

I am fully conscious that I have merely touched upon some phases of this subject. Nevertheless, I shall indulge in the hope that it may

serve to kindle a flame, which shall not only consume the evils that obscure our vision and obstruct our pathway, but act as a cleansing and purifying influence to such an extent that an attempt like the one I have made in your presence shall be wholly unnecessary.

A HISTORY OF DENTISTRY.

BY GEORGE H. PERINE, D. D. S., NEW YORK.

[Continued from page 19.]

ADVANCE OF THE SPECIALTY IN ENGLAND, AND ITS PRESENT STATUS.

The work of Hunter stimulated others who, by their own researches, were able to correct the errors into which he had fallen, to write upon the teeth. They were, however, generally obliged to acknowledge themselves indebted to their worthy predecessor for many valuable hints derived from his book. Among these we have two names which should never be permitted to sink into oblivion—those of Blake and Fox.

ROBERT BLAKE was the author of "The Formation and Structure of the Teeth in Man and Various Animals." It was published in Edinburgh, in 1798, and in it the writer called attention to some of Hunter's errors which he endeavored to correct. It was considered one of the best physiological works on the teeth which had appeared up to that time. Errors of opinion not unfrequently, however, occur in the work, but it still continues, notwithstanding, to hold a prominent place in the literature of odontology.

Among English surgeons belonging properly to the eighteenth century, although his first work did not appear until the beginning of the nineteenth, none stood higher than Joseph Fox. He was born in 1776. But little is known of his early history. It is however supposed that he was engaged for some time as dresser for McKline, a surgeon of St. Thomas hospital. How he obtained his practical knowledge of dentistry we are not informed, but he alludes to the great desire of the students to obtain particular information concerning the diseases of the teeth, and which his knowledge of dentistry enabled him to satisfy.

In 1799 he delivered his first course of lectures, on the structure and diseases of the teeth, and so well were they received that they were continued as one of the spring courses of lectures in Guy's

hospital. In 1803 his book, "The Natural History of the Human Teeth," appeared. Although Fox was much indebted to Hunter and Blake for information yet, in many instances, he corrected errors and improved and enlarged upon their theories. One important discovery of his corrected an error into which both of his predecessors had fallen, namely, their impression regarding the non-vascularity of the membranes surrounding the pulps. These, by injections, in which he was very successful, he proved to be vascular.

Fox also informs us as to the causes and means of preventing irregularities of the teeth, concerning which he was thoroughly versed. His theories have been borne out by half a century of practice. He also wrote of the diseases which attend dentition, with care and evident acquaintance with the subject.

In 1806 he published the second volume of his work entitled, "History and Treatment of Diseases of the Teeth, Gums, and the Alveolar Process." Both works were for a long time regarded as authority on the subjects upon which they treated, and as late as 1846 an edition was published in Philadelphia. Fox was particularly admired for his enlightened mind, his energetic character and liberal heart. He died at London, April 10, 1816.

Although a few treatises upon the subject followed the works of Hunter, Blake and Fox, it was not until the appearance of Bell's work upon the "Anatomy, Physiology, and Pathology of the Teeth," in the year 1829, that dentistry in England may be said to have attracted any particular attention, or to have been studied as an important branch of medicine.

Thomas Bell was a man of profound physiological and pathological observation and acquirement in the department of anatomy. Although some of his theories have been questioned by modern writers, they are considered generally sound, and the ability and careful research necessary to the combination of a work such as his are universally admired. It is regarded as one of the most valuable works upon the teeth ever issued by the English press. It passed through three editions in America, and will always hold a high place in the literature of the profession.

Among the trans-Atlantic names worthy of memorial record, none can claim a more honorable mention than that of Thomas Bell, F. R. S. The son of a distinguished surgeon in Dorsetshire, England, and born in 1792, he early commenced with his father his professional studies and, before the age of twenty, entered the London hospital

contemporaneously with Sir Astley Cooper, and other famous surgeons of that period. In 1815 he passed the College of Surgeons, and two years later began lecturing at Guy's hospital on the Anatomy and Diseases of the Teeth, and was appointed dental surgeon of that institution. For many years he enjoyed, in London, not only a large and select dental practice, but attained a very high position in the scientific world. Honors, offices and endowments signalled his professional career. He was made professor in King's College in 1836, Fellow of the Royal Society in 1838, Secretary of the same from 1848 to 1853, when he was elected President of the Linnæan Society, Honorary Fellow of the Royal College of Surgeons, and one of the examiners in Dental Surgery. He was distinguished as the author of many scientific works. Having for some years retired from practice to live on his estate in the country, he ended his long and honorable life of four-score and eight years on the 13th of March, 1880.

In 1822 Alexander Nasmyth commenced his professional studies in Edinburgh with his brother Robert, who was a successful practitioner. From Edinburgh he proceeded to Paris and placed himself under the eminent dentist, Audibran, whose mode of practice he carefully noted. He some years later located in London where, in 1831, he received from the Royal College of Surgeons a diploma. He published several dental works about 1839, which stamp him as a man of extensive research and high scientific and literary attainments. Through the appreciation of his professional abilities he was appointed dentist to the Royal family. He died suddenly on the 3d of August, 1849.

In 1836, John Tomes, of London, issued a work "On the Structure of the Teeth, the Vascularity of those Organs, and their Relations to Bone." Tomes is believed to be the first in England to write upon the structure of the teeth. In addition to the confirmation of Parkinje and Retzius, Tomes gives new points establishing the vascularity of the tubular structure.

His son, Charles, following in the footsteps of a worthy father, has won for himself a proud position in the profession through his ability as a practitioner, lecturer and writer. In the latter capacity, he has produced an able work in his "Tomes' Dental Anatomy," through which odontological knowledge has been much augmented.

Simultaneously with the elder Tomes' first volume, appeared one from the pen of Richard Owen on the Structure of the Teeth. It comprises two volumes which are embellished with 168 beautiful plates, fully and clearly explained. It is acknowledged to be the

most comprehensive work which has ever been published on the subject. It must be acknowledged that to Mr. Owen the profession is greatly indebted for an increase of knowledge, particularly so far as the development and general microscopical structure of the teeth is concerned. He was a member of the Royal College of Surgeons, and is said to have been remarkably successful in all operations of a surgical nature. In 1836 he was appointed Hunterian Professor of the college with which he was connected. His remarkable talent and persistence in professional research have been productive of results which will inure for his name a prominent place in the history of the profession.

Next in order comes Jas. Snell who, for many years, occupied a prominent position, by reason of his skill in practice, and the advanced and enlightened views he gave to science in his work which made its appearance in 1831. It was entitled "A Practical Guide to Operations on the Teeth," an American edition of which appeared the following year.

James Robinson was a student at Guy's hospital and the London University, where he gave much of his attention to the study of the physiology of the teeth. He was born at Hampshire in 1813. In 1830 he commenced business in London as a chemist, but very shortly thereafter his inclinations led him to adopt the practice of dentistry, in which he soon acquired an extensive reputation for dexterity and skill. His characteristic energy and activity were fully displayed in the zeal with which he labored to promote, elevate and advance his profession, by means of organized education and association. In 1842 he made strong efforts to establish a dental society which, owing to the general apathy which prevailed in professional circles, were rendered futile. His work entitled "Robinson on the Teeth," is an authority and has had a large circulation. His articles furnished to professional periodicals have been numerous. In 1849 Robinson received the appointment of dentist to H. R. H., Prince Albert. His professional attainments also attracted the attention of the Baltimore College of Dental Surgeons which, in 1846, conferred upon him the honorary degree of Doctor of Dental Surgery. Mr. Robinson took an active part in the great dental reformatory movement begun in 1856, and was elected first president of the College of Dentists (London) in that year. In 1862 he founded the "National Dental Hospital," which was opened shortly before his death, which occurred in April, 1862.

We must not omit to mention here Robert Thomas Hulme, M. R. C. S., the author of "Teeth in Health and Disease," and several other works and translations. He wrote much for the English and Continental press, and was a member of a number of professional organizations, and at one time edited the *London Dental Review*.

He was born in London, January, 1816, and at an early period began the study of medicine at a London hospital, and commenced practice in 1840. As a man of science, his exertions were well known and appreciated when he occupied the position of lecturer on Comparative Anatomy at the Grosvenor Place School of Medicine. He greatly excelled as a lecturer, as his knowledge of every subject he handled was complete. In lecturing, he did not have recourse to notes, but spoke extemporaneously and with good effect. He was highly esteemed, by those who knew him, as an honorable and talented gentleman, and his death, which occurred on the 9th of July, 1870, is greatly regretted by them. He was, at the time, in the 54th year of his age.

The labors and literary productions of Benjamin W. Richardson have placed him upon a footing with the prominent practitioners and theorists of the present day. His lectures, originally delivered before the College of Dentists, in England, and afterward published in book form, have stamped him as a man of keen insight and practical ability.

Another practitioner worthy of mention was Edwin Sercombe, who was identified with the efforts to advance the specialty, which he practiced in London, and his name will always recur in connection with the Odontological Society and the London dental hospital. He was a man of great thoroughness and earnestness of purpose, and of unimpeachable rectitude. The profession everywhere deeply felt his loss. His death occurred April 14, 1875, in London.

James Harley, of London, was an exceedingly active member of the profession, who devoted himself with ardor to the educational interests of the specialty. He was one of the early members of the College of Dentists, of which he was for three years a member of council, and two years vice-president. He was born at Gibraltar, in 1797, and died at Finchley, August 22d, 1860.

We must not omit to mention the names of Cartwright, Waite, Mason, Salter, Coleman, Heath and Cole, all of whom have contributed extensively to the advancement of the specialty in Great Britain by their arduous efforts. Nor will we attempt to enter into details

regarding the professional changes which have occurred in Great Britain, but will briefly allude to a few items of interest.

In the United Kingdom the advances in theory have been greater than in practical skill, while in this country the advances in all departments of the profession have been great. As a proof of this assertion, we may mention that it was some eighteen or twenty years after dental colleges were established in America before similar institutions were opened in London. It was in 1860 that the "Royal College of Surgeons of England" passed regulations relating to the professional education of candidates for examination in dental surgery. In instituting this department of surgery, the college laid down a curriculum to be followed by students and, after successful examination, granted a diploma of fitness to practice, under the title of "Licentiate in Dental Surgery."

In 1878 the "Dentists' Act" was passed, and came into operation the following year. In accordance with it each person styling himself a dentist, dental practitioner, or assuming any title implying a qualification to practice dental surgery, was compelled to enter his name in the Register of Dentists, and those failing to comply with this requirement were debarred from practice. By this Act the dentist is given the same protection and privileges as the medical practitioner.

The Royal College of Surgeons in Ireland also inaugurated, in 1878, examinations in dental surgery, and appointed examiners for existing practitioners resident in Great Britain, who are eligible according to certain conditions. The title of the new diploma is "Licentiate in Dental Surgery of the Royal College of Surgeons in Ireland."

On August 2, 1858, an Act to regulate the qualifications of practitioners in medicine and surgery was passed in England. From it we quote the following in consequence of its relation to the practice of dentistry:

"*Article XLVIII.* It shall, notwithstanding anything herein contained, be lawful for Her Majesty, by charter, to grant to the Royal College of Surgeons of England power to institute and hold examinations for the purpose of testing the fitness of persons to practice as dentists who may be desirous of being so examined, and to grant certificates of such fitness."

Recently a general law was established in Great Britain clearly defining the system of education necessary to be pursued by the student preparatory to his application for registration under the "Dentists' Act."

It must be admitted that dental organizations have contributed largely to the advancement of the specialty in Great Britain and elsewhere.

The "Odontological Society of Great Britain" was, we believe, the first organized in England, although there now exist six associations of a similar character, and it is impossible to estimate the amount of good which may attend the efforts of these organizations in the future.

The College of Dentists of England was founded in 1855, the Metropolitan School of Dental Science in 1859, and since that time the following institutions have come into existence: The Dental Hospital and School of Medicine, London; the National Dental Hospital and College, Edinburgh; Dental Hospital and School, Dental Hospital and Anderson's College, Glasgow; Dental Dispensary and School, Plymouth, and the Dental Hospital of Dublin. In 1858 the Royal College of Surgeons of England established a dental chair, and the Royal College of Surgeons of Ireland, and the Faculty of Physicians, Surgeons, of Glasgow, the Royal College of Surgeons of Edinburgh, and the Queen's College, Birmingham, now grant dental diplomas. The last dental hospital established in England was at Essex, in 1880.

The Birmingham Dental Dispensary was founded in 1855, since which time the following have opened their doors: The Reading Dental Dispensary, the Liverpool Dental Dispensary and Provident Dispensary, Eastburne.

The first dental appointment to the regular medical staff of Guy's Hospital was made in 1782, the appointee being a Mr. Rae. A dentist is now included among the medical attendants of most of the hospitals throughout the Kingdom.

In 1803 a dental appointment was made by the Middlesex Hospital, Westminster. Subsequently similar appointments were made to King's College Hospital, Charing Cross Hospital, the North London Hospital, the Royal Free Hospital. St. James Hospital, St. Mary's Hospital, St. Thomas Hospital, St. George's Hospital, St. Bartholomew's Hospital, St. John and Elizabeth Hospital, the Bethlein Hospital, All Saints Convalescent Hospital, the Bloomsbury Branch of the Metropolitan Medical Provident Association and the Oldham Infirmary.

There are published in Great Britain three dental journals.

There were, in 1881, about 6,000 dentists registered in Great Britain, a small number of this total being Americans.

With this imperfect review of the professional matters in Great Britain we will, in the succeeding chapters, consider the condition of the specialty in other parts of the world.

[To be continued.]

A REVIEW.

BY D. M. CLAPP, D. M. D., BOSTON, MASS.

[Read at the Nineteenth Annual Meeting of the Massachusetts Dental Society, in Boston, December, 1883.]

When one thinks he has found a new idea, and from his brain has sprung that which will cause his name to be placed among the few who have startled the world with something really new, he is very apt to find that his cherished dream was dreamed long before, and his idea new only to himself.

The dentist is perforce a practical man. Theories he likes, and, once or twice a year, perhaps, after his day's work is done, comfortably seated at his fireside, the dreamy mood comes over him. Visions float before him. His pet ideas march past in grand procession. The standard-bearers carry banners with head-lines in large letters, of the subjects, now vague and little understood, awaiting his strong and piercing thought to clear up and expound, so that the dullest may understand at a glance. He enjoys the dream, but one night cannot last forever; the next day's work effectually effaces the visions of the previous night, and it is long months ere the tired brain again indulges in resolves to make original researches into the realms of science so inviting to us.

I say the dentist is by force a practical man. I venture to say, with some few notable exceptions, that you cannot find a first-class dentist in full practice who is also a profound investigator into or a searcher after theories. Neither is the profound investigator a good practical dentist. The requirements of either are so great that the physical system is not able to sustain the work of both; hence, to be great in one, means less greatness in the other. There have been those who have tried both, but the fate of a Hitchcock, or others we might mention, soon overtakes them. The dentist's education is technical; it begins when he first decides to make the profession his, and ends when he lays down the instruments after the last operation is finished. Read, he must; think, he must; and *work* always.

I do not come before this Association with anything new to present, neither do I flatter myself that I can instruct its members, all of whom, for aught I know, are my superiors.

I have been led somewhat of late to go over in my own mind my personal experience since I began practice, and have found considerable profit in tracing various means and methods that I have used, abandoned, taken up again, perhaps in a modified form, and com-

paring what were formerly and are now considered essential qualities and results.

As I read, if any of you are helped, or are reminded of something important that has been forgotten, or inadvertently laid aside, and shall be taken up again on account of my words, I shall be more than satisfied, remembering that one who spent many years in arduous work for the elevation of our profession, but has now passed to the reward of his labors, said more than twenty years ago: "The educated practitioner, indeed, needs rather to be reminded than to be *taught*."

Entering upon the study of dentistry about the time that cohesive gold came to the front, I was brought up to use it exclusively. In fact, I did not know how to make a wedge filling, and was entirely ignorant of the advantages of non-cohesive gold when used alone or in combination with cohesive. It is my belief that, under favorable circumstances, no more perfect filling can be made with any material than with cohesive gold. In fact, within a few days, I have seen some fillings made of cohesive gold, from bottom to top, that were put into dead, broken down teeth more than a decade ago, that are as perfect now as it is possible for a gold filling to be made. I am proud of these fillings. But one swallow does not make a summer, neither will these fillings, and dozens more like them, prove that cohesive gold is the best for preserving teeth as a general thing. Any man, who has had a few years of experience, that will at the present time say that cohesive gold has all the good qualities that gold possesses for filling teeth, or, on the other hand, that non-cohesive is the only thing to use, must be set down as a bigot, or ignorant, or something worse.

In making joints in large water mains, a hemp or some similar packing is first used, and then lead is hammered in to make it secure, hard and tight. So, in making secure fillings, we want to pack undercuts, except where great strength is required, and all places not easily accessible, with non-cohesive gold, and then drive it home with cohesive. But this is no new thing. I find written, dating back more than twenty years: "Since the introduction of crystal foil, we have almost invariably packed the walls of the cavity with soft foil, and filled the center with crystal. Perhaps this practice may be called eclectic, as we certainly believe soft foil is better for the walls of a cavity, while for solidity and fineness of finish, crystal foil is preferable." Have we improved upon this very much in the last twenty years?

Again, I read, published in January, 1867: "A *loose* pellet of *un*-adhesive gold, large enough to fill a cavity, will be found useful in many cases to be introduced *first*, into which small pieces of adhesive gold can be forced, to which others will adhere. This is especially useful in cases where you cannot fix an *adhesive* first pellet in the anchorage. Gold *mixed* in this way will be found *very* desirable by those who will try it in suitable cavities."

And again, in the same year, I find another saying: "He always commenced these (proximal fillings) by laying a cylinder of non-adhesive foil against the cervical wall, and then following down and finishing with adhesive foil, assisted by the mallet."

This tells about the whole story. Non-cohesive gold against the walls because, in ordinary cases, it can be made tight more easily than cohesive; then we need the cohesive for strength and fineness of finish. It is not necessary that enough non-cohesive foil be put in the cavity to line all the walls before using cohesive. In most cases, I think this is impracticable.

For many years I have been in the habit of starting fillings with non-cohesive foil, and, before consolidating it, forcing in the cohesive, and then working the two along together, using suitable-sized pieces of non-cohesive to be packed against the walls and in the less accessible places, and cohesive for the surface, where strength is needed.

A word in regard to the mallet: The introduction and general adoption of cohesive gold was soon followed by the mallet. The first year of my practice I used the hand-mallet exclusively, and some of the monuments erected at that time show conclusively that good fillings can be made with it. I abandoned it because of the difficulty in getting a good malleter. I have had, however, ever since, a strong affection for the old hand-mallet, and have again adopted it. But it was not to the hand or automatic mallet I wished to call your attention, but to the necessity, as I think, of giving gold a solidity in fillings, that cannot be had without it, unless great time is taken and very small pieces used. A filling by hand pressure, under ordinary circumstances, made as solid as it must be in order to get the best results, is far more exhausting to both operator and patient than if the mallet is used. I think there is such a thing as hammering the life out of gold, and that injudicious pounding is worse than none. I feel sure that in days past I have used the mallet to excess, and I know, beyond a doubt, that in days not many years back I have not used it so much as I ought.

You know the title of my paper is "A Review." It is a sort of

personal retrospect in some respects. From my chair, where the mallet was used with what I considered commendable vigor, I came to have opportunities of overlooking other operators whose reputations were second to none in the world—reputations, I am bound to add, however, gained when they used the mallet as much as I was using it—who were putting in nice looking fillings with but few strokes of the mallet, and light, gingerly hand pressure. I thought a revelation had come to me, that I had been ignorantly subjecting my patients to unnecessarily severe treatment, that I had taken more time for operations than there had been any need of.

I tried the light pressure system; I made good looking fillings in from one-half to two-thirds the time as formerly. I thought I had struck the correct scheme. It took about two-thirds of a year to excite suspicion that fillings made in this way, although they would finish up well, and appear at the time to be perfect, were a little "off color,"—that there were flakes coming off, softening and disintegration at the margins of the fillings, and other things that made my heart feel as though it weighed about twenty-five pounds, and was made of cold lead. It took about three years to thoroughly convince that a gold filling, to show its best capacity for checking decay, must be put in *solid*. I would not be understood as saying that every part of a large filling must be as "solid as coin," but every margin and the entire surface must be very compact indeed.

As a filling material, I believe that gold at the present time must be reckoned high on the list. It must at all times be used with great care. Sometimes it is best alone, and sometimes in combination with other materials. It will not stand the test of indiscriminate use.

I cannot refrain from making a short quotation in this connection from one who has probably written more on dental subjects than any other living member of the profession. He is reported to have said, some seventeen years ago, in speaking of Morgan's plastic gold: "As to manipulating it, even a tyro would make a good filling in less time with it than the best operator could with foil. He would not say 'out loud' that an ordinary cavity could be properly filled with it in two minutes; but he would say, in a whisper, that it could be done in less time." It is hardly necessary to add that the gentleman thus speaking excluded gold entirely from his list of filling materials some years since.

Valuable as gold is for preserving the teeth from further decay, it is, however, far from being the ideal material for filling cavities of

decay in teeth. Let us, who have for so many years done our best to save teeth with materials so unsuited for the purpose as those we are obliged to use, hope that before we lay down our work we may have the satisfaction of using a material that shall be exactly adapted to our requirements. There has been great advancement in dental materials and appliances during the last twenty years. In 1862, Dr. J. W. White made this remark: "The plugging forcep is the only *machinery* we know of that can be brought to bear in putting plugs in teeth." This was only about twenty years ago, and yet how many are there in this room who ever saw a "plugging forcep," or who do not now use machinery to a great extent in "putting plugs in teeth"? Surely, the last two decades have been fruitful in mechanical inventions. Let us hope that ere two more shall have passed, the *ideal* filling material shall be in our hands.

Soon after the advent of cohesive gold, the subject of contour fillings began to occupy a very prominent place in the discussions and writings of the times. I began by making mostly contour fillings. To-day I am a believer in a modified contour, that leaves as much as possible the margins of filling in a condition to be easily kept clean. The most of us, I presume, try to hold to a conservative course in our methods, and for our knowledge we are indebted to all writers and teachers. To Dr. Arthur we owe much (and I say it with all respect, for I believe him to have been entirely sincere and honest) for teaching us how *not* to separate the teeth. If all the mouths operated on by him are in the condition of those that have been under my observation, those who see them will never practice that system. We are also indebted to the gentleman who told us that a "good" gold filling could be put in in less than "two minntes" and other things. And so on, through the list.

In regard to contour or flat fillings, Dr. Latimer said, in 1867: "Until the advent of crystal gold, and the employment of the adhesive property of foil, nearly all plugs were left even with the walls—mere plain surfaces. This was necessitated by the difficulty—often quite insurmountable—met with in attempting to fill cavities compounded of more than one surface, and hence called compound cavities. Accordingly we got access to the approximal cavities of molars and bicuspids by slabbing off their approximo-grinding angles, and filled them with large soft pellets, cylinders or ropes. The aperture between the teeth was V-shaped, and, as a consequence, the patient subsequently experienced great annoyance from accumulations

of food wedged between the teeth and *crowding* against the gum. Frequently the tooth-pick had to be employed several times during a dinner for the removal of such accumulations. . . . That occasional failures will be made by *any* process, I am fully aware; that imperfectly-anchored contour fillings will be liable to dislodgement, has been frequently proved to me; but an experience of more than five years of the contour work, following five years of the flat method, has compelled me to dissent from the judgment of those who style the modern method 'fancy' and 'filagree' work."

Dr. Latimer might also have said that decay often occurs around contour fillings, and something more than a perfect contour filling is usually called for.

In a paper of great practical value, read before this Society a few years ago, Dr. Bonwill, of Philadelphia, presented with great earnestness the necessity of so shaping the teeth before filling that, after the operation is completed, the margins of the cavities might be self-cleansing, or as much so as possible, and easily accessible to the brush. He insisted that for approximal cavities in bicuspids and molars there must be wide spaces at the necks of the teeth; that the walls should be cut well back and the filling built out so as to form the point of contact near the cutting edge. As a rule, this will leave the cervical portion of the filling just under the free margin of the gum, the buccal and palatine or lingual margins exposed to the action of the brush. This system requires a great amount of labor, but I am thoroughly convinced that in no other way can bicuspids and molars be so successfully filled. Simply removing the decay, and putting in a filling contoured to the original shape of the tooth, and then allowing the adjoining tooth to rest so against the filling as to cover its margins, will not as a rule be a successful operation. I must commend Dr. Bonwill's method.

To make lasting fillings in these cases nothing will answer but thorough, persistent hard work, backed up by good judgment and great skill. I have tried to show what treatment seems to me best for the bicuspids and molars, and have plead for contour fillings.

Passing now to the anterior six teeth, the conditions are changed. Contour work in large and medium cavities in these teeth is open to serious objections. The fillings will be very conspicuous, difficult to keep clean and, most likely, there will be a recurrence of decay. The proper way of treating these cases is, I conceive to be, to cut freely from the approximo palatine border of the cavity, making a wide

opening underneath the teeth, *but without removing the point of contact near the cutting edge.* This can be done, as a rule, without injuring the shape of the teeth in the least, causing the filling to face toward the tongue, almost entirely hiding it underneath the tooth. Teeth treated in this manner, when looked at from the front, do not show that they have ever been filled, unless the cavities are very large, while a glance in the mirror, placed underneath, will reveal the entire circumference of the fillings in full view, and capable of being examined at any time without previous separation.

This system, as well as that advocated for bicuspids and molars, involves much hard and patient labor, and two or three fillings an hour cannot be made. But its advantages are so great that it seems as though it must be universally adopted. I do not remember, however, of a half dozen patients coming under my care, in as many years, that have had their incisors treated in this manner. It is no new thing, for it was advocated by the late Professor Chapin A. Harris, of Baltimore.

The best method to pursue is to separate sufficiently, by pressure, to get easy access to the parts, *without danger of cutting away the point of contact with the adjoining tooth—the saving of which is emphatically essential.* Some portions of the tooth may be removed with properly shaped chisels, but my main reliance is on the emery paper disks and strips. It is in just these cases that the emery paper disk is of the greatest service. The coarser grades cut very fast, and their flexibility makes it possible to so guide them as to give the tooth the shape required, and they are infinitely less disagreeable to the patient than the rigid corundum or diamond disk. I can't resist the temptation to say that, in my opinion, the emery paper disk of different grades and sizes is the most useful article that has been brought out since the advent of the engine. Strips of one-eighth of an inch, more or less, in width, cut from well-shellaced emery paper, are also exceedingly serviceable. The tooth having been properly shaped, and the cavity prepared, the putting in of the gold in these cases is one of the most comfortable and satisfactory operations we have to perform. The chair is low down, and the patient tipped back enough to be comfortable. Everything being in readiness, the operator seats himself, and begins the work. By aid of the mirror, the whole cavity is visible and easily accessible, and the whole operation is done in nearly an erect position. The gold all in, it is trimmed down with the coarser disks, and then those made from the flour of emery paper are used

for the final finish. With these a polish is given to the filling and surrounding tooth substance that is simply a revelation to those who never used them.

Had I not already tired your patience too much, I would like to speak of various methods of separating, particularly the use of the ligature and cotton combined, and many other things that present themselves at this time. But I must leave this for others, or until some future time.

A RARE CASE IN DENTAL PRACTICE.

BY W. F. JOHNSON, D. D. S., EAST CORINTH, ME.

Mrs. M., a lady of fifty-two years of age, applied to the writer in March, 1881, concerning the condition of her mouth, giving the following history:

At the age of thirteen, when sick with fever, she was treated with calomel. Seventeen years after this treatment, the second superior bicuspid and first molar on the right side, together with the alveolar process attached, exfoliated, and came away in a body. Soon after, the corresponding teeth of the inferior jaw and the two central incisors, together with the alveolar process exfoliated and came away. After this, there was a continuous offensive discharge from the antrum and surrounding parts, until she came under my treatment at the above date, she having received no treatment whatever for the disease of the maxillæ up to that time. She had always been in poor health since her sickness with fever, referred to, about forty years before she came under my treatment. Her ill health she attributed solely to the diseased condition of her mouth.

The process of the superior maxilla was eaten away from the canine to the second molar, and extended to nearly the center of the hard palate, making an opening into the antrum and nasal cavities nearly an inch in diameter.

A large portion of the floor of the orbit was destroyed, exposing the eye, and causing intense pain in the eye whenever the patient went into cold air, also causing contraction of the inferior rectus muscle, the movements of which could be distinctly seen by the aid of a mirror.

Her remaining teeth being in bad condition, I removed them, seventeen in all, after which I commenced treatment of the disease of the maxillæ by applying aromatic sulphuric acid, about one-half

official strength, direct to the parts affected, three times a week for two weeks. I then used dilute chloride of zinc twice a week for three weeks in the same manner. In the meantime I directed her to thoroughly cleanse the parts three times a day with tepid water, to which about 15 per cent. of phenol sodique had been added. This she did by taking it into the mouth and throwing it out through the nose. The discharge at this time having ceased, I discontinued all treatment except the use of dilute phenol sodique after the above manner, which she continued for about two months. At the end of that time the parts were all in a healthy condition. I then inserted a full set of teeth, after the usual manner, on rubber, which she wears constantly. All trouble in the eye ceased, the plate effectually shutting out all cold air. The treatment in this case was entirely local, no constitutional treatment whatever being employed.

I saw the lady a few days since and had the pleasure of finding her enjoying excellent health; and, although nearly three years have passed, there has been no return of the discharge, and the parts are to all appearances in a healthy condition.

TRUE DISINFECTANTS.

[From Scientific American.]

"Many a so-called disinfectant is employed to-day in a certain solution, when it does not possess any value whatever under the circumstances. If it is really our intention to disinfect we must be certain, at least, that we shall achieve our object with the remedy we are using; if such is not the case, we only irritate without benefiting. . . . Most surgeons have been satisfied to wash their hands and clean their instruments with a 2 per cent. solution of carbolic acid. Such a solution is almost inert, and a 5 per cent. solution is necessary to achieve the desired object. But what is the most interesting is the fact that *carbolic acid dissolved in oil or* WATER *proved itself* TOTALLY INERT! . . . . Koch found that carbolic acid dissolved in oil or in alcohol had not the *slightest* influence on the vitality of any of the micrococci or bacilli.

Sulphurous acid was found to be powerless against *spores;* bacilli and micrococci, when exposed to the fumes in a box, were killed in *twenty* minutes, but not at all influenced when exposed to the fumes in a room at the usual temperature.

Chloride of zinc proved just as harmless. A 5 per cent. solution exerted absolutely *no* influence on the spores of anthrax, notwith-

standing the same had been exposed to the action of the remedy for a period of *thirty* days.

Of other drugs, the spores of bacilli were killed by chlorine water, fresh prepared; 2 per cent. bromine water, 1 per cent. aqueous solution of corrosive sublimate, 5 per cent. solution of permanganate of potassium, 1 per cent. osmic acid, within *one* day; formic acid, *four* days; ol. terebinth, *five* days; sol. of chloride of iron, *four* days; 1 per cent. arsenious acid, 1 per cent. quinine (water with muriatic acid), 2 per cent. muriatic acid, within *ten* days; ether, within *thirty* days. Inert, or nearly so, distilled water, alcohol, glycerine, oil, sulphur-carbon, chloroform, benzol, petroleum-ether, ammonia, concentrated solution of common salt, bromide and iodide of potassium, 1 per cent; sulphuric acid, sulphate of zinc and copper, alum, 1 per cent; permanganate of potash, chromic acid, the chromates and bichromates, chlorate of potash, 5 per cent; boracic acid, 5 per cent; acetic acid, 5 per cent; tannic acid, 5 per cent; benzoate of sodium, 5 per cent; quinine, 2 per cent (in water 40, alcohol 60), iodine (1 per cent. in alcohol), thymol (5 per cent. in alcohol), salicylic acid (5 per cent. in alcohol, 2 per cent. in oil).

As regards remedies which prevent the further development of spores, the following results were obtained. The first column of numbers means retarding development, the second, totally preventing it:

Corrosive sublimate,	1 :1,600,000	1 : 320,000
Oil of mustard,	1 : 330,000	1 : 33,000
Arsenite of potash,	1 : 100,000	1 : 10,000
Thymol,	1 : 80,000	
Ol. terebinth,	1 : 75,000	
Hydrocyanic acid,	1 : 40,000	1 : 8,000
Ol. peppermint,	1 : 33,000	
Chromic acid,	1 : 10,000	1 : 5,000
Picric acid,	1 : 10,000	1 : 5,000
Iodine,	1 : 5,000	
Salicylic acid,	1 : 3,300	1 : 1,500
Permanganate of potash,	1 : 3,000	
Muriatic acid,	1 : 2,500	1 : 1,700
Camphor,	1 : 2,500	
Eucalyptol,	1 : 2,500	
Benzoic acid,	1 : 2,000	
Borax,	1 : 2,000	1 : 700
Carbolic acid,	1 : 1,250	1 : 300

But as, for purposes of disinfection, the micro-organisms must be killed, and in the shortest possible period, and the effect of retarding the development of the spores (antiseptic) is not sufficient, only the following remedies can, according to Koch's experiments, be said to be of value: corrosive sublimate, chlorine, bromine, and iodine. Bromine in form of vapor is, as concerns rapidity of action, superior to chlorine and iodine."—*Med. and Surg. Rep.*

Dr. Arthur T. Cabot's results are as follows, viz:

"Carbolic acid, $\frac{1}{20}$—5 seconds.
Liquor sodæ chlo., $\frac{1}{10}$—15 to 30 seconds.
Salicylic acid, $\frac{1}{40}$—3 minutes.
Thymol, $\frac{1}{300}$—3 minutes.
Thymol, $\frac{1}{1000}$—4 minutes.
Carbolic acid, $\frac{1}{4}$—4 minutes.
Permanganate potassæ, $\frac{1}{80}$—over 6 minutes.
Chloride of zinc, $\frac{1}{12}$—over 6 minutes.
*Alum acetatis, over 6 minutes.

Dr. Henry O. Marcy, using Dr. Cabot's methods, arrives at results, as follows, viz:

Carbolic acid, $\frac{1}{20}$—5 seconds.
Carbolic acid, $\frac{1}{40}$—2 minutes.
Thymol, $\frac{1}{300}$—1 minute.
Thymol, $\frac{1}{1000}$—exposed 2 to 4 minutes, failed.
Salicylic acid, $\frac{1}{100}$—3 minutes.
Listerine—4 minutes.
Chloride of zinc, $\frac{1}{12}$—5 minutes.
Quiniæ sulphas, $\frac{1}{10}$—exposed 5 minutes, failed.
Boracic acid, $\frac{1}{10}$—exposed 5 minutes, failed.
Calcic chloride, $\frac{1}{10}$—exposed 5 minutes, failed.
Permang. potass., $\frac{1}{30}$—exposed 4 minutes, failed.
Boro-glyceride, $\frac{1}{30}$—exposed 3 minutes, failed.
Platt's chlorides—exposed 4 minutes, failed.
Ol. eucalyptus, $\frac{1}{100}$—exposed 3 minutes, failed."

Paper read before Am. Acad. of Med.

These statistics seem to bear me out in the assertion that the germicides are practically useless for use in cases of dental caries, owing to the necessary strength of the solutions and the length of time they must be used. *Corrosive sublimate* of a strength of 1 in

*Recommended by Mr. Paul Burns in London Medical Record.

2,000 is the most active and certain, but who of us dares to use it as a mouth wash. Carbolic acid, the next most useful, of a strength of 1 in 20, would leave little living tissue on the surface of the oral cavity. All the others are entirely out of the question.

The question then recurs: What, as practical dentists, can we best use for those purposes for which our much lauded disinfectants fail us?

At the last meeting of the Merrimac Valley Society, and the first of the New England Association, this question came up and was debated at some length, and, if my memory serves me aright, Prof. Mayr made the statement, in reply to some remarks of mine, that, although these organisms required a very weak alkaline medium to live in, yet a very slightly stronger one was death to them. That is, the bicarbonate of soda solutions, which we can freely use in a saturated state, are practically the germicides the "bug" men are seeking, as well as the antacids of the acid men. *Quod erat demonstrandum.*

T. H. C.

TRANSLATIONS.

THE NATURAL SHEDDING OF THE MILK TEETH.

The loss of the milk teeth is a physiological process, whose intimate mechanism is still obscure. The few authors who have investigated the matter, since Hunter, have stated hypotheses which, in the present state of our knowledge, are inadmissible.

J. Tomes, himself, who, by his remarkable works on the development of the osseous and dental tissues, has gained an undoubted authority, explains it in a manner which we shall discuss presently, but which we feel compelled to reject although it rests upon certainly well observed facts. Finally, M. Magitot, whose labors on the anatomy and the histology of the teeth are so justly appreciated, confines himself in his most recent work to declaring the insufficiency of the divers theories heretofore put forth, without giving his own opinion. In his long article in the *Dictionnaire Encyclopedique*, he simply says "that the physiologic reason of the resorption of the roots of a temporary tooth is the existence beneath it of a corresponding permanent tooth."

This short article has for its end to make known the results of our

own investigations upon this question, and to show that the resorption of the roots of the milk teeth, the sole cause of the loss of those organs, implies the intervention of no special organ, as most authors have wrongly asserted; but results simply from the physiologic modifications caused by the eruption of the permanent teeth on the nutrition of the surrounding parts.

The loss of the milk teeth is the condition necessary for the normal eruption of the teeth of replacement. It takes place successively for each tooth, or for each group of teeth, at a period very near that of the eruption of the corresponding permanent teeth, unless, which is a not unfrequent circumstance, some pathologic condition hastens it. It is a physiologic phenomenon which, under normal conditions, should take place spontaneously and entirely without surgical intervention. If, in fact, daily experience shows that this rule has numerous exceptions, it likewise shows that they are always connected with some trouble of the milk tooth, or with some anomaly. However this may be, the loss of the deciduous teeth is always preceded by a work of preparation whose seat is its roots, and which ends only with their complete disappearance. Then the organ, reduced to its crown and free from all connection below, detaches itself and falls with the slightest shock.

The resorption of the temporary teeth is an act which is accomplished slowly, and whose phases it is difficult to follow by means of specimens culled from subjects of different ages. At the moment when it is about to begin, the crown of the corresponding permanent tooth is finished and contained in an alveolus closed on every side and absolutely distinct from that of the deciduous tooth.

The first phenomenon produced is generally the disappearance by resorption of the thin wall that separates the two alveoli from each other; then resorption begins upon the root, generally, but not always at the points in direct apposition with the subjacent crown.

It takes place now on the end of the root and now on one of its sides. Sometimes, as we see in the molars, the opposite faces of each root, and sometimes two or three points of the same root simultaneously show the first traces of resorption. This, in all cases, attacks little by little the whole of the root and may even invade a portion of the crown.

The attacked parts are always easy of recognition from their peculiar appearance. They seem to have been gnawed; their edges are always irregular and sharp; their surface is composed of a multi-

tude of minute excavations, visible under the magnifying glass or even with the naked eye. By what mechanism has this resorption been accomplished? In our opinion, it is by a process analogous to that of simple osteïtis, which acts constantly, as is well known, by alternative phenomena of resorption and osseous reproduction, with definitive predominance of either one or the other.

Histologic examination confirms this interpretation; it shows, in fact, as the investigations of J. Tomes have well established, that the resorption of the milk teeth is not a continuous phenomenon, but a process of irregular progress, presenting periods of arrest, and capable of being replaced by a work of development.

Under the influence of the physiologic irritation determined by the eruption of the permanent teeth, all around the point where the work is begun the united elements of the inter-alveolar wall of the cell containing the permanent follicle and of the periosteum of the deciduous tooth become the seat of an active proliferation, which results in the formation of a tissue resembling that of the embryonal marrow. This new tissue may in turn be the agent of destruction, or the agent of formation, according as this irritation is itself more or less intense. As in simple osteïtis, the same elements produce alternately the destruction or the formation of osseous tissue, according to the degree of inflammation.

The inter-alveolar wall is especially the seat of these alternations; constantly pressed upon by the erupting permanent tooth, it is destroyed in spots, to be again re-formed and again destroyed.

The roots of the temporary teeth show clearly the same variations, but in a less degree, and with a marked predominance of the destructive process. The cement is the first tissue attacked, then the dentine, finally the enamel, if the tooth is not lost before the resorption has reached this point. When the destruction upon a root is momentarily arrested, and has been supplanted by a movement of development, we find the excavated surfaces of the cement, of the dentine and of the enamel itself covered with a new formation which is moulded upon the irregularities of these tissues and intimately united to them. Tomes and Wedl, in their treatises, have figured preparations, showing these phenomena in a remarkable manner. This new tissue will in its turn undergo resorption, to again perhaps be re-formed until, finally, the destruction preponderating, the tooth finishes by falling out.

In no case does this reparative tissue present the structure of normal dentine, the development of this substance demanding special conditions not found in such cases.

In accordance with the facts just stated, it is seen that the resorption of the roots of the milk teeth is a phenomenon absolutely comparable with what is observed when, for example, an aneurism of the arch of the aorta, or any tumor of the mediastinum, eats away little by little, and at last perforates the sternum of the ribs. It is not the mechanical pressure of the tumor which thus causes the disappearance, molecule by molecule, of the bony tissue; but this pressure reaches the same result indirectly by the irritation it causes.

Just in the same manner does the permanent tooth act at the moment of its eruption, and as the irritation is not necessarily circumscribed to the exact points that receive the pressure, it is not seldom that temporary teeth are met with whose roots present traces of resorption at once on several points not in direct connection with the tooth of replacement, or indeed on points even separated from it by portions still intact of the inter-alveolar wall.

This mechanism of the physiologic loss of the milk teeth, so simple and so conformable to the ordinary laws of development, has never, we believe, heretofore received its correct interpretation. This phenomenon of the resorption of the roots has now long been regarded as a process complex and obscure; for even Hunter, declining to explain it by mechanical pressure alone, supposes, without definitely stating, the intervention "of some process peculiar to the economy."

Later, Lafargue, Bourdet and the elder Delabarre, described by the name "fungi-form body," or "absorbent papilla," a special organ situated beneath the temporary tooth whose office was to secrete a liquid able to dissolve the roots.

More recently J. Tomes, while rejecting this interpretation, reasserts the existence of the "organ of resorption," whose histologic structure he has even described with minute details. It is, according to him, a mass of cellules, many of which "resemble in an astonishing manner those which Kölliker has described under the name of myeloid cellules." It is sufficient to read Tomes' description to be satisfied that his "absorbent papilla" is nothing but this new formation of "embryonal marrow," whose development we have just explained; the histologic structure is identical, the function is the same. Why, then, make a special organ of these elements which are everywhere met with wherever a process of osseous formation and resorption is in action?—Prof. J. Redier, in the *Lille Journal of Med. Science.*

NEW METHODS OF PRODUCING SURGICAL ANÆSTHESIA.

BY DR. WOLDEMAR HOLSTEIN OF BASLE, SWITZERLAND.

[Translated from the *Centralblatt fur Zahnheilhunde*, Nov., 1883.]

Ethyl Bromide as an Anæsthetic.—Among the new means of producing artificial anæsthesia, recently recommended, we must mention ethyl-bromide—first made use of by Dr. Lawrence Turnbull, of Philadelphia.

Turnbull has also given a new and improved method of producing this substance. It was formerly very imperfectly prepared from bromine and alcohol in the presence of some phosphorous. Turnbull made it out of potassium bromide or bromide of iron, with sulphuric acid and alcohol. He took 24 oz. of coarsely pulverized bromide of potassium, 64 oz. of sulphuric acid and 32 oz. of water; then, after thoroughly cooling, added to this mixture 16 oz. of alcohol of 95%, and heated the whole in a retort on the sand-bath to 93.3° centigrade. The following reaction takes place:

$$\underset{\text{Bromide of Potassium.}}{KBr} + \underset{\text{Sulphuric Acid.}}{H_2SO_4} + \underset{\text{Ethyl-Alcohol.}}{C_2H_6O} = \underset{\text{Acid Sulphate of Potassa.}}{KHSO_4} + \underset{\text{Water.}}{H_2O} + \underset{\text{Ethyl-Bromide.}}{C_2H_5Br}$$

The ethyl-bromide vapors are caught by the distillation in water which floats above. After the development of gas has finished, about 20 oz. of ethyl-bromide are obtained. In order to have this product pure, it must be shaken with a solution of bi-carbonate of potash and then with water, and finally once more distilled.

There is a still better process of producing ethyl-bromide in large quantities: Mix in a stone jar 1 gallon of water and 2½ lbs. of iron filings with 5 lbs. of bromide while cooling carefully all the time. Filter the green solution of iron bromide carefully, add 15 lbs. of sulphuric acid and then mix with this solution 6 pints of alcohol of 95%; after this, distil the fluid. The product of reaction is:

$$\underset{\text{Bromide of Iron.}}{FeBr_2} + \underset{\text{Ethyl-Alcohol.}}{2C_2H_6O} + \underset{\text{Sulphuric Acid.}}{H_2SO_4} = \underset{\text{Sulphate of Protoxide of Iron.}}{FeSO_4} + \underset{\text{Water.}}{2H_2O} + \underset{\text{Ethyl-Bromide.}}{2C_2H_5Br}$$

Seven pounds of ethyl-bromide are obtained for about twelve cents. This product, however, must again be distilled and cleansed at a temperature of 56° C. It will then lose its strong odor, and become pure and colorless. It boils at 45.4° C., and has a specific weight of 1.4. It is not combustible.*

Turnbull praised the ethyl-bromide very highly for its effect, as it

*See "American Journal of Pharmacy," Vol. X., No. 5, and "Pharmacist," Vol. XIII., No. 5.

disappears much quicker than chloroform and all other anæsthetics from the system. The heart and lungs are said to suffer but very little when not too great quantities are inhaled. Nausea is more seldom than when ether or chloroform are used. Finally, the anæsthetic effect of ethyl-bromide shows itself, especially *on the neck.*

Now it is a well-known fact that every newly discovered remedy or method finds enthusiastic advocates. But how often it appears that, notwithstanding this advocacy, it has no superiority over and sometimes stands far behind the old methods. It is certainly known that ethyl-bromide is an anæsthetic, and can be used as such; but the question is, will it be preferred to ether, chloroform or nitrous oxide? This question was treated a few weeks ago by the renowned surgeon, E. Rose.* After many clinical trials, Rose was convinced that ethyl-bromide would generally produce only semi-narcosis. To produce *entire* narcosis would take a very long time. (In one case of Rose's it took one hour.)

Lastly, ethyl-bromide has a very disagreeable quality; that is, a combination ensues in the system which discharges itself very slowly and imparts to the breath of the patient an intense and very repugnant odor. Therefore, the application of ethyl-bromide for cases of general surgery is discarded by Rose. Could not, however, ethyl-bromide be successfully used in dental practice where semi-narcosis is often sufficient? To investigate this point, is naturally a matter for practical dentists. For us, personally, remains the present conviction that true progress in artificial anæsthesia cannot be obtained by a continual search for new methods, but in the improvement in the application of chloroform and nitrous oxide, as shown by the experiments made by Paul Bert.

NON-CORROSIVE SOLDERING FLUID.

A non-corrosive soldering fluid is prepared in the following manner: Small pieces of zinc are immersed in muriatic acid to saturation, which can be known by cessation of ebullition; the zinc, also being added after this point, remains undissolved; add about one-third the volume of spirits of ammonia, and dilute with a like quantity of rain water. If the acid is gently heated at the time of adding the zinc, the dissolving will proceed more rapidly. This fluid causes no rust on iron or steel and is even excellent for tinning.—*Popular Science News.*

*"Essays on Anæsthesia," Deutsche Zeitschrift fur chirurgie, Vol. XIX., No. 1, August 14, 1883.

EDITORIAL.

LISTERINE.

Listerine is the essential antiseptic constituent of thyme, eucalyptus, baptisia, gaultheria and mentha avensis in combination. Each fluid drachm also contains two grains of refined and purified benzo-boracic acid. The claim is made for it that it is a reliable antiseptic and non-toxic, therefore absolutely safe, even if used in full strength—internally or externally. Since the conviction has grown upon the profession that carbolic acid may be open to grave objections, the need has become seriously felt of a reliable antiseptic remedy that should be free from any toxic influence. Listerine is indorsed by a very large number of the best medical and scientific authorities as efficient and safe.

We have used it for nearly a year past, and freely say that we should very much dislike to be without it. It has a very agreeable odor, makes a pleasant and efficient mouth wash, is excellent for injecting pockets formed by pyorrhœa alveolaris, or infectious alveolitis, preferable in many cases to carbolic acid in the treatment of "dead" teeth and alveolar abscesses, inasmuch as it does not coagulate albumen, deodorizes the breath and imparts a cool and agreeable sensation to the mucous membrane of the mouth, and, in short, seems to satisfactorily meet the demand for a non-irritating and non-toxic antiseptic. For dental purposes it should, in our judgment, largely take the place of carbolic acid; it is certainly very much more agreeable to both patient and operator. We sincerely hope the profession generally will subject this preparation to a careful test.

S.

BE THOUGHTFUL OF YOUR PATIENTS.

When patients are confined to one position in long operations it will be noticed that they are inclined to place their hand to their back or side, thus showing that the position has become wearisome, and this notwithstanding you may have the easiest chair in existence. Just change the back of the chair or head-rest a trifle, bringing into use a different set of muscles, and then notice the instantaneous look of gratitude which follows. If you wish to please your patients and win a good class of practice, be mindful of these little acts which seem so small, but really have so weighty an influence.

"WANTED—A BAPTIST DENTIST,"

is the title, in bold-face type, of an advertisement in the *Canadian Register*. We are told that Dundas, with a population of four thousand, is without a dentist, that "a good brother would be very useful, and very soon prosperous." But wouldn't a Methodist dentist, a Presbyterian dentist, or a Unitarian dentist do quite as well? We did not know before that membership in the Baptist denomination was in itself a preparation for the practice of dentistry. But, since Swedenborg knew by the aching of his teeth that Paul had surrounded himself with hypocrites in the next life, the relation between theology and dentistry may be more intimate than we had surmised. If the people of Dundas have discovered that Baptist dentists have an inspiration and skill that is not possessed by those of other denominations, they are right in publishing the fact to the world. But we fear that we discern in this advertisement an attempt to revive, under the disguise of dentistry, the horrors of the inquisition for the purpose of religious propagandism.—*The Christian Register.*

Should any one of our good "Baptist dentists" secure this promising opening, we hope they will at once subscribe for the NEW ENGLAND JOURNAL OF DENTISTRY. We shall make no other charge for the advertisement.

THAT "PRIVATE" LETTER.

Prof. Wright has received a letter. He immediately announces the fact to the *Ohio State Journal.* It's a pretty good letter, too. Here we have a portion of it.

"DEAR DR. WATT: I have just this morning received a letter from Berlin, from Miller, who says that he is more fully convinced than ever that 'the first stage of caries consists in a decalcification of the lime of the tooth by acids, *which for the greater part are produced in the mouth by fermentation.*'" (The Italics are ours.) "He believes, too, that he has at last got the *ferment* 'by the tail.' You know he has all along been misrepresented by many who have not studied his articles, and who simply think it 'the thing' to talk *germ theory* without study.

Miller's views will soon be published. He is a modest, hard-working young fellow, and is winning for himself and for American dentistry a fine name in Europe. Yours truly,

C. M. WRIGHT."

Possibly, when Prof. Wright has had time to reflect, he will see that if Dr. Miller has really "got this *ferment* by the tail," *it* must be a *micro-organism;* that if the "decalcification" is dependent upon an acid *produced by* micro-organisms, then the claim that they are "the

essential factor in dental caries" is not so very "wide of the truth," after all. Certainly, even according to this view, no "bugs," no caries, and the "bugs" are "*primary*." Will Prof. W. claim that this is a "misrepresentation?" Perhaps it may dawn upon him after awhile that he himself is the one who has "not studied" the articles of Dr. Miller and others with sufficient care.

The "difference in explanation," referred to editorially, relates to the precise point when dental caries *actually begins*. Miller claims that it begins with the *acid* stage of the process; the *germ theorists*, that it does not begin until the *putrefactive* stage is reached; that the result of the action of acids is erosive, simply, and stops short of true caries. In other words, if the *putrefactive* stage of the process in tooth destruction is altogether eliminated, there can be no *caries*. Teeth may be lost or destroyed from the results of the action of acids alone, but, in such cases, it should not be said that the loss or destruction is due to *caries*.

A HAIRY RACE.

In Burmah there was living a woman who had her body entirely covered with hair, and otherwise had a decided resemblance to the monkeys. King Thebaw, of Burmah, paid one of his subjects five hundred rupees a month to marry this peculiar individual; he wished to have the species propagated and, indeed, there was born alternately a normal and a hairy child.

There appears in our advertising pages an announcement of the dissolution of the firm of F. W. Leonard & Co., and the formation of the American Dental Manufacturing Co. We understand that Mr. Leonard continues the dental depot business at the old stand, but that Messrs. Hanway and Dawson have joined with others in the manufacture of dental supplies.

Has the pedal of your dental engine become smooth so that you are troubled by your foot slipping? Take a piece of common rubber packing, say one-eighth of an inch thick, cut out a piece of suitable shape and attach to the pedal with wire, and your annoyance in that direction, at least, will have an end. Even if your foot does not slip, the feeling of the rubber will be much more agreeable than the iron.

NOT DEAD BUT SLEEPING.

Not long since the funeral services of a wife and mother were in progress; the eulogy had been pronounced, songs had been sung, a prayer said, and the friends were about to take a parting look at the lifeless remains. The undertaker stepped to the coffin to see that all was in suitable readiness. He looks! he staggers back aghast. The parson raises his hands: "Friends, the funeral of Mrs. —— will proceed no further. She appears to be alive. You are dismissed."

The death of the *Missouri Dental Journal* has been heralded all over the land. The mournful announcement was official and regular. Eulogies have been pronounced, songs of praise and esteem have been sung, tears of regret have been shed and prayers for its repose and peace were uttered far and near. The would-be undertaker advances, but suddenly falls back. Signs of a struggle for life appear upon the countenance of the sleeper. The parson announces that the funeral will proceed no further. Strong men of science and skill are hastily summoned to the rescue and the indications are cheeringly hopeful that resuscitation will ensue. In fact, the patient has so far recovered from its trance-like state that a trip has been undertaken to the more congenial clime of St. Louis, its city of nativity, where the loving hands of friends and the cheering influences of home will, doubtless, make sure its complete *re-demise*.

We strongly suspect that Dr. Spalding could not consent to see his old friend buried out of sight, and we rejoice that it may now be said that the *Missouri Dental Journal* "is not dead, but sleepeth." It will soon appear again with all its old-time vigor, under the control of the dentists of the Mississippi valley.

Most heartily do we extend our congratulations.

At the meeting of the Odontological Society of New York, January 15, Dr. Perry presented some fine instruments made after his own patterns—excavators, scalers and plug trimmers—which he commended very highly for the quality of steel and temper; they were made by the successors of Blake & Co., Philadelphia.

Dr. Lord and others spoke in praise of Williams' "electric" gold.

Dr. E. T. Payne read an interesting paper on gutta-percha, giving some account of the history of its discovery and introduction to commerce. He said that no gum could be obtained now that was equal in quality to that which was first collected by cutting down the trees.

With a carefulness of which we have hardly an idea in this country, the statistics of diseases are collected in all the larger and smaller towns of Germany. Every week and every month the exact figures are published. This duty devolves upon the so-called state physicians who are nothing but city physicians paid a certain sum by the general government. Their duty, for which they receive this part of their income, is the granting of a certain time every day for gratis consultation, to give certificates of the deaths, births, autopsies, etc. The cause of the death has to be given every time. As an interesting example, we can give that in the month of May, in the kingdom of Bavaria, 2 per cent. of the children died of hooping-cough, of which there were twice as many girls as boys; on the other hand, children's cramps killed twice as many boys as girls—in all, 4 per cent. Tuberculosis caused death to the amount of 16 per cent., with almost twice as many men as women. Old age may be said somewhat absurdly to be more dangerous to women than to men, for almost twice as many women as men died of that desirable disease. Exactly one per cent. committed suicide—five times as many men as women. Deaths by accident and suicide have the same figure.

They treat offenses, for which the least punishment in this country is five years in jail, rather too lightly in Germany. A dentist took undue advantage of the narcosis produced by chloroform on a girl. She complained and, after much trouble, the case came to trial, and ended in a judgment of — six weeks in jail. This is slightly too cheap. They ought to have a little tar and feathers over there.

SELECTIONS.

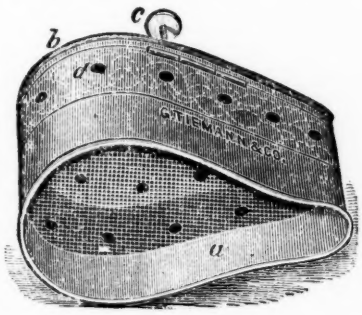
A number of statistics are given about teeth in Russia, which go to show that there carious teeth are not quite so rare. They are not so common as here, since 60 per cent. of the soldiers show perfect teeth, but in this primitive country 40 per cent. have carious teeth. The third molar was in most cases defective. The duration of the upper teeth in proportion to the lower was about three to two. Individuals with light complexions had less durable teeth than those with dark ones, but the difference was only 3 per cent. The teeth of the right side show more vitality than those of the left, and the durability of the

teeth was slightly in inverse proportion to the education of the individual. Among the students, Prof. Sklifassorvsky found that only 28 per cent. had perfect teeth; in 72 per cent. molars were carious. Eighty per cent. of the inhabitants of St. Petersburg have carious teeth; hence, civilization does not seem after all to have such a most prevalent effect upon the teeth.—*M. d. V. d. Z.*

AN IMPROVED INHALER.

BY R. W. MITCHELL, M. D., MEMPHIS, TENN.

The accompanying woodcut so clearly represents the instrument that an explanation of it is hardly necessary. This inhaler is made of tin. It is divided by a diaphragm of wire gauze into two nearly equal parts. The letter *a* shows the mouth-piece with the wire gauze inside, and openings for the admission of air. The cover *b*, opens by



a hinge on the side, and allows the introduction of cotton cloth or other material, which lies on the top of the wire diaphragm, and receives the ether.

There is a sliding button, *c*, which goes between the fingers, and facilitates the handling of the instrument. When not in use, this button slides in.

This inhaler has been fully tested, and is recommended to the profession on the grounds of:

1. Durability. 2. Cleanliness. 3. Cheapness. 4. Economy of ether, the amount being far less than that consumed by other inhalers.

It is manufactured by Messrs. George Tiemann & Co., New York.

N. Y. Medical Journal.

ON THE RELATIONS BETWEEN DENTAL LESIONS AND DISEASES OF THE EYE.

BY HENRY POWER, M. B. LOND., F. R. C. S.,

Opthalmic Surgeon at St. Bartholomew's Hospital, and Surgeon to the Royal Westminster Opthalmic Hospital, &c.

[Read at a meeting of the Odontological Society of Great Britain, November 5th, 1883, and reprinted from the Transactions of the Society.]

The connection between dental disease and affections of the eye is not at first sight very apparent, but it has been noticed, though for the most part only casually, by many writers. I have thought that it might interest this Society, and might at the same time be serviceable to those who are engaged in opthalmic practice, if I attempted to collect some of the evidence which seems to demonstrate that dental disease may excite various opthalmic affections; that it might also be the means of eliciting valuable hints from those who are engaged in dental surgery, and that it might afford an opportunity for the citation of cases which, though exceedingly interesting when considered in connection with others of the same nature, may not have been regarded by those in whose experience they have occurred as of sufficient importance to merit reporting.

I have taken some trouble in looking through the treatises of those authors who have written in the course of the last hundred years, and I think it may be said that the connection between dental and opthalmic disease has not been specially dwelt upon in this country before the year 1824. Beer, indeed, before this spoke of a consensual affection of the eye which might occasionally be due to carious back teeth; but no mention is made of the teeth by Ware or Chandler, who both wrote in 1780, nor by Scarpa, whose treatise was translated by Briggs in 1806, nor by Weller in 1821. Scarpa, indeed, in his account of ptosis, states that it may be produced by indigestion and gastric disease, and by the presence of worms; and in speaking of amaurosis holds that it may result from contusion and laceration of the supra-orbital nerve.*

Weller (1821), in like manner, who copied the great German oculist Beer, though he does not allude to the teeth, and of course does not speak of reflex actions, yet recognizes this class of affections when he refers various forms of amaurosis to sudden suppression of lactation and acute cutaneous affections, and to loaded bowels,

---

*Scarpa (page 511) gives many cases of reflex amaurosis.

whilst he elsewhere refers strabismus and blepharospasm to worms in the intestinal canal. The first writers I have met with who distinctly refer to the teeth are Travers, who speaks of strabismus caused by difficult dentition, and Frick, who, in 1826, speaking of the causes of strabismus, remarks that it is "often concomitant with difficult dentition;" whilst Welbank, who translated Frick's book, in a note on the treatment of amaurosis, states that he has obtained good results from the employment of carbonate of iron in cases of amaurosis "proceeding from disease of the dental nerves."

After this period, difficult dentition and dental disease are often mentioned incidentally amongst other causes of opthalmic disease.

I presume that you will all accept as a fact, that which is admitted by all opthalmic surgeons, that there is such an affection as reflex or sympathetic opthalmia, that is to say, that irritation of one set of branches of the fifth will affect those of the opposite side; yet in discussing the subject before us it seems to me in the first place important that I should very briefly put before you the evidence showing that reflex irritation of the eye really occurs. If any opthalmic surgeon be asked why he believes in reflex irritation of the globe and its appendages, his mind at once reverts to many cases in which injury to one eye, especially of the ciliary region, has been followed, after a period of very variable duration, by inflammation of the uninjured eye of a low but steadily progressive type, generally involving all the tissues, and leading to more or less serious impairment, or even to complete loss, of vision.

I could give many cases from my own experience. I will limit myself to two.

A young man presented himself to me at St. Bartholomew's Hospital, Chatham, saying he had been struck with a piece of the head of a chisel on the eye. His vision had previously been perfect. On examination there was a wound in the cornea, a rent in the iris, blood in the anterior chamber, and traumatic cataract. He could see light, and the shadow of the hand. I had no doubt that a fragment of metal was in his eye, and that practically the eye was lost. I recommended its removal. He declined. A week after, perception of light still remaining, he again declined to have anything done. Soothing remedies were employed. About six weeks later he came with the opposite eye sharply inflamed; there was dimness of vision and general inflammation of the globe. He was now anxious to have the eye originally damaged, from which he had suffered a martyrdom, removed. I did that operation, but it was too late; the inflammation ran its course in spite of careful treatment, and he lost the sight of both eyes. That is the usual result.

[To be continued.]

A CURIOUS MALPOSITION OF A TOOTH.

In a recent number of the "*Lancet*," Dr. Gopaul Chunder Roy relates the case of a Hindoo lad, aged fourteen years, who presented himself for treatment at the Soree Charitable Dispensary, for what he considered to be a tumor growing within the nasal cavity. He noticed a foul smell in his breath about four months before, attended with catarrh and sometimes a bloody discharge from the left nostril. For the previous two months the growth had been observed to occupy the left cavity, where it seemed to be attached to its wall at its upper part, its free end was looking downward in the shape of a truncated cone. Arrangements having been made for plugging the posterior nares, in the event of uncontrollable hemorrhage, the tumor was seized with dressing forceps and extracted. It proved to be a tooth of the shape of a canine. There was very little bleeding after extraction, and this was stopped by alum lotion. The free extremity was covered by enamel, which stopped short at its junction with the root. The root was deeply embedded in the side and upper part of the antrum. The boy had got his set of permanent teeth, with the incisors and canines entire on either side. There was no deformity of the jaw and no swelling or cystic formation. It was clearly a case of extra-follicular development and eruption of a tooth in a wrong place, the peculiarity being that while in reported cases of like nature the crown of the tooth shows itseif at the floor of the nasal cavity from below upward in the present instance, by some freak of nature, the dental follicle was transposed, and the eruption was from above downward. The tooth has been sent to the Royal College of Surgeons' Museum.

N. Y. Medical Journal.

BOOKS AND PAMPHLETS.

CENTRALBLATT FÜR ZAHNHEILKUNDE.

The chief editor of this paper lives in Geneva, Switzerland, and it is printed in Berlin, Germany—a slightly scattered affair about Cincinnati, Boston.

VICK'S FLORAL GUIDE, for 1884, is an elegant book of 150 pages, 3 colored plates of flowers and vegetables, and more than 1,000 illustrations of the choicest flowers, plants and vegetables, and directions

for growing. It is handsome enough for the center table or a holiday present.

By sending your name and address, with *ten cents*, to James Vick, Rochester, N. Y., a copy may be received, postage paid. No lover of flowers should be without it.

CAULK'S DENTAL ANNUAL. L. D. Caulk, D. D. S., Camden, Del., editor and publisher. A dental hand-book of reference, 40 octavo pages, price 25 cents.

This is a neat little pamphlet containing many statistics of interest and importance: "a hand-book of reference" that every one will find convenient to have accessible. It also contains several excellent original articles by well-known men in the profession. Dr. Caulk would, evidently, make a good editor.

ON THE RELATIONS BETWEEN DENTAL LESIONS AND DISEASES OF THE EYE. By Henry Power, M. B. Lond., F. R. C. S. A reprint from the Transactions of the Odontological Society of Great Britain.

This is a paper that should be studied by every dentist. We consider it of so much importance that it may be looked for in some future number of this journal.

DENTAL MEDICINE. A Manual of Dental Materia Medica and Therapeutics, for Practitioners and Students, by Ferdinand J. S. Gorgas, A. M., M. D., D. D. S., of the University of Maryland, Baltimore. Published by P. Blakiston, Son & Co., 1012 Walnut St., Philadelphia.

This is a work of over 300 pages, printed and bound in a most excellent manner. As it comes just as we go to press, we cannot now attempt a review. A casual glance, however, convinces us that it is a work of great merit. We can do no better now than to quote in full the modest preface to the work, and reserve for a future number a more extended notice:

"This work has been prepared by the author in deference to many requests from former pupils, and has been compiled from lectures delivered by him in dental institutions during the past twenty-five years, and notes obtained from the standard works on Materia Medica and Therapeutics, and also from personal experience as a dental practitioner and teacher.

While the author claims the credit of the compilation, he does not claim originality in the sources, derivations, medical properties and action of the various articles of dental materia medica which are given in this work.

His intention has been to present not alone his own ideas as to the particular application of remedies, but also those of well-known and acknowledged authorities, and in such a manner as may be of service to the dental student in acquiring a knowledge of this important branch of his profession; hence nothing has been presented in this work that, in the author's opinion, is not applicable to dental practice, and that will not be of benefit to the dental student.

The dental formulary comprises many valuable combinations, and credit has been given, in every case where it was possible, to the authors of the different preparations.

The necessity for an American work of this kind has long been apparent, and after years of delay and promises the author gratefully dedicates this work to his former pupils in the dental institutions with which he has been and is now connected, in the capacity of a teacher."

January, 1884.

MONTHLY LIST OF PATENTS.

For Inventions relating to Dentistry and Surgery, bearing date Dec. 25, 1883. Reported expressly for this Journal by Louis Bagger & Co., Mechanical Experts and Solicitors of Patents, Washington, D. C.

290,915—J. O'Brien, Kalamazoo, Mich., artificial leg.

290,841—F. Bohsert, New York, N. Y., surgical chair.

290,359—R. M. Ross and E. J. Klinck, Utica, N. Y., dental engine fan.

290,401—W. P. Cooke, Milford, Mass., abrading disk-holding spindle for dental engine.

299,608—J. W. Snyder, Philadelphia, Pa., medicine inhaler.

10,423—R. M. Ross, Utica, N. Y., dental drill hand-piece.

290,014—B. F. Eshelman, Harlan, Iowa, dental plugger.

289,472—W. W. Vance, Kearney, Neb., device for holding dental drills on whetstones.

22,289,743—F. E. Young, Canton, Ohio, surgical chair.